Section One: Introduction to SPD

Estimated Contact Time: **45-65 minutes**

This module covers:

- the history and purpose of the SPD organization,
- organizational structure,
- the role SPD plays in infection control,
- and the basic concepts required to understand SPD functions.

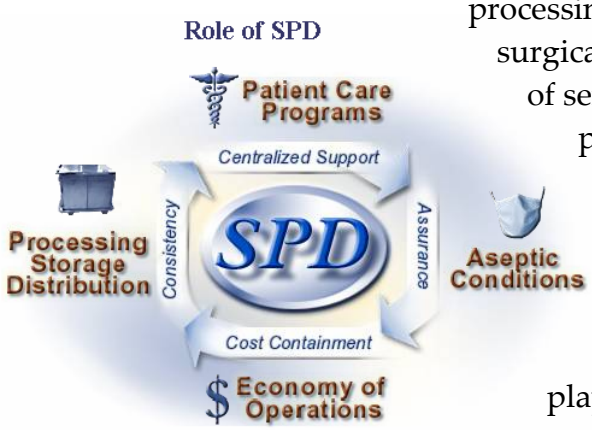
Following instruction, you should be able to perform the following:

- ☑ Identify the role of SPD.
- ☑ Identify SPD practices and process flows.
- ☑ Identify functional areas.
- ☑ Specify the need for patient confidentiality and cost containment.
- ☑ Distinguish among people, material, work, and air flow.
- ☑ Identify SPD workplace hazards and associated tools and procedures.
- ☑ Identify regulatory agencies which affect health care facilities.
- ☑ Identify requirements associated with working in the SPD environment.

The Role of SPD

Although operations vary from medical center to medical center, SPD's goal is the same: to support medical health care professionals by providing a continuous flow of *sterile* and *non-sterile* equipment and supplies to all users.

SPD's mission is to ensure controlled aseptic conditions in the processing, storage, and distribution of medical and surgical supplies, while maintaining a high degree of sensitivity to cost containment. Without SPD personnel on the job, other medical center professionals would lose valuable direct patient treatment time sterilizing surgical instruments, retrieving patient care equipment, and ordering and stocking medical and surgical supplies. SPD also plays a critical role in infection control. The support that SPD provides is essential to every organization in a medical center that provides patient care.



Dual Role

SPD is unique in that, it not only functions as an administrative section, it also functions as a *clinical* one. Administratively, SPD must follow all Federal procurement regulations. Clinically, SPD is involved in facilitating quality patient care by providing the right product in the right condition at the right time.

A Brief History

Today's modern hospitals are very different from how medicine was practiced in the past. Prior to the 19th century little or nothing was known about what caused the spread of infectious diseases.

1800s In the late 1800s and early 1900s doctors traveled around from patient to patient, often spreading disease as they went. Even in hospitals, *antiseptic* techniques were not practiced. In 1854, an Englishman named John Snow published "On the Mode of Transmission of the Cholera"—the first scientific study on the transmission of an infectious disease. Snow correctly traced the spread of the disease to a water supply contaminated by washing soiled linens from the sick. From 1870 to 1886, Louis Pasteur did his groundbreaking work on microorganisms and the spread of infectious diseases. Many of the basics of sterilization derive from Pasteur's work.

1900s Sterilization and antiseptic techniques became more common in the 1900's, but individual users still processed medical and surgical supplies. There was no coordinated central system for processing and managing surgical and medical supplies. During the 1940's, W.B. Underwood and John J. Perkins promoted the concept of centralizing supply, processing, and distribution functions. In 1956, John J. Perkins published the book: "Principles and Methods of Sterilization", which is currently in its 7th edition. Due to Underwood and Perkins work, SPD is a critical line of defense in preventing the spread of *nosocomial*—or hospital-acquired—diseases or infections.

1967 Before 1967, SPD was known as Processing and Distribution (PAD). PAD organizationally was under Nursing Services. Its function was primarily the distribution of supplies. Sterilization and instrument preparation were performed by individual user organizations such as the Operating Room and Dental. After 1967, the PAD operation was placed under the Acquisition and Materiel Management Service and renamed Supply, Processing and Distribution. With the new name came expanded responsibilities including decontamination, sterile processing, and inventory management.

2000 SPD today is traditionally divided into three functional areas: Decontamination, Preparation, and Inventory Management & Distribution.

Functional Areas

Decontamination

The Decontamination Area is responsible for cleaning and decontaminating reusable equipment, instruments, and supplies. This is accomplished by manual cleaning, or by mechanical means using items such as ultrasonic washers, glassware washers, glassware dryers, tube washers, tube dryers, flexible

endoscope washers, washer/sterilizers, washer/sanitizers, cart washers, and steam guns.

Preparation

The main sterilization methods are steam and gas. Preparation is where items to be sterilized are inspected, assembled, and packaged for sterilization.

Instruments are carefully examined to make sure they are working properly, they are not bent or broken, and that all parts are present. Items are then assembled and packaged for sterilization using a set of assembly guides or count sheets. Aseptic technique is followed at all times.

Distribution & Inventory Management

The Distribution Area is responsible for the requisition, issue, and maintenance of medical/surgical supplies. Stock is divided into primary—items which are stored within the confines of SPD Clean/Sterile Storage—and secondary which are stored in user areas such as wards, nursing home care units, and ICUs. In addition, Distribution is also responsible for *case cart* assembly, *exchange cart* inventory, *secondary inventory*, and *telephone* and/or call window distribution.

Distribution may be subdivided into:

- A receiving and breakout room where supplies are accepted from the warehouse, depot, or supplier.
- Bulk storage—a separate area where items are stored until they are unpacked and moved to the clean/sterile storage area. In bulk storage, items are stored in their cardboard containers.
- Clean sterile storage where SPD's *primary stock* is kept for easy access.

In addition to storing supplies, SPD is responsible for ordering and maintaining adequate inventory and dispensing supplies to users as they are needed.

Protective Clothing

Each area within SPD has a dress code which must be strictly adhered to. Only properly attired, authorized personnel are allowed in SPD. The purpose of dress codes is to prevent cross-contamination, to maintain a professional appearance, and to protect the employee.

To minimize the spread of *microorganisms* and bacteria, employees remove protective clothing and wash their hands before leaving the decontamination unit. They then put on freshly laundered scrubs.

Staff in the preparation unit must wear special clothing to keep the medical items free of lint, hair, and other foreign matter.

- A long sleeve scrub suit or warm-up jacket is required.
- Post earrings, wedding rings, and a basic watch are allowed.
- Necklaces are allowed but must be worn inside the scrub shirt.
- Artificial finger nails; excessive, overwhelming perfumes; and other jewelry are **NOT** allowed.
- Dedicated shoes are recommended for use in this area.
- When leaving the clean/sterile areas, a cover gown/lab coat is required.

Distribution has its own dress code which is aimed at presenting a professional image and helping others identify SPD staff. The traditional blue smock and white pants are worn, unless the nature of the assignment dictates otherwise.

Patient confidentiality

Medical supply technicians must be aware of their responsibility for patient confidentiality. The disclosure of a patient's medical or personal condition must never be communicated to others who are not directly involved. Regardless of how information was obtained, it must be kept confidential. Employees should not discuss patient issues while at lunch, on breaks, or in public access areas.

Cost containment

Cost containment is an issue that concerns all medical supply technicians. Waste can be reduced by the careful handling of supplies, accurate record keeping, and clear communication with users to set adequate stock levels and eliminate unofficial inventories. Medical supplies and equipment are very expensive. Theft and fraud have a negative impact on medical centers, are punishable by law, and must be reported immediately.

Infection Control

SPD is critical in the defense against harmful microorganisms. Every precaution must be taken to minimize disease transmittal and prevent cross contamination.

Infectious control precautions include:

- **Paying careful attention to personal hygiene and good health to minimize the potential for acquiring or transmitting disease**
- **The use of protective equipment and frequent hand washing to eliminate cross contamination**
- **Ensuring that medical supplies are decontaminated and processed under the best possible conditions**
- **Practicing Universal Precaution/Standards which mandate that all contaminated items be treated as if they are infectious**
- **Adhering to established dress codes to prevent cross contamination**
- **Participating in the hospital's Infection Control Committee**
- **Practicing strict environmental control**

Environmental Control

Air flow from clean to dirty. By creating a positive air flow in clean areas and a negative air flow in dirty areas, the movement of airborne microorganisms can be minimized.

Work flow, the order in which medical items are received, processed, and dispensed, moves from dirty to clean. Contaminated, reusable items are transported to the decontamination area by means that protect people and the environment.

People flow moves from clean to dirty. It is tightly restricted to prevent the spread of microorganisms commonly found on the human body and clothing. You must change clothing and shower before returning to a clean area.

Material flow refers to the movement of clean/sterile supplies and reusable and contaminated items. Contaminated items enter the decontamination section in covered containers and are cleaned and disinfected then moved to the preparation area where they are sterilized. Products must be removed from shipping cartons before being stored on clean, sterile shelves.

Workplace Hazards

There are a variety of safety hazards associated with each SPD area. With proper training and attention, incidents can be kept to a minimum. Areas where hazardous materials are used must have warning signs posted. Information, in the form of Material Safety Data Sheets, is maintained on the characteristics of hazardous substances used in the workplace, and there are standard procedures in place to deal with the threat of fire or similar dangers.

Workplace hazards can be categorized into six different areas:

Environmental	Includes cuts or sticks from needles, falls from wet floors in the decontamination area, and burns from steam sterilizers in the preparation area.
Chemical	Cleaners and disinfectants used in the decontamination area. Ethylene oxide is an extremely toxic, known carcinogenic gas used to sterilize many heat, liquid, or pressure-sensitive items.
Biological	Generally associated with the pickup and decontamination tasks, biological hazards arrive on equipment and supplies which have been contaminated with potentially pathogenic microorganisms.
Electrical	Includes shocks from frayed or cut cords, damaged equipment, and improper cleaning of equipment.
Mechanical	Usually involves equipment operation. SPD uses large automated pieces of equipment, such as automatic autoclave doors, automatic transport systems, cart washers, dumbwaiters, and elevators.
Physical	Result from improper lifting, pulling, pushing, and bending.

Hazard communications are an ongoing activity. SPD employees must be aware of the potentially dangerous products they use on a daily basis. A *Material Safety Data Sheet (MSDS)* is a document that provides information on the physical characteristics and potential health risks of a hazardous material, as well as other information, such as the chemical name, common or trade name, manufacturer,

and ingredients. The MSDS also gives instructions in the event of hazardous contact with the product or a leak or spill. For any hazardous material to which SPD technicians may be exposed, an MSDS must be on file and training will be conducted annually. A copy of the MSDS file must be accessible to all employees for easy reference.

Fire Safety Requirements (RACE)

All SPD employees, as well as all medical center employees, must be familiar with fire safety rules and procedures. The acronym **RACE** is used to define actions to be taken in the event of a fire.

Rescue/Remove—all persons in immediate danger

Alarm/Alert—activate fire alarm; dial appropriate number and inform operator where fire is located

Confine/Contain by closing doors/windows

Extinguish/Evacuate—extinguish the fire if you can, if not, evacuate

Working in the SPD Environment

In the last 20 years, the SPD environment has become more complex. The skills and knowledge required have increased. There are multiple governing and policy-setting agencies at the federal, state, and local level that have an impact on health care facilities. Some of the more prominent ones include:

Occupational Safety and Health Administration (OSHA) —The federal regulatory agency responsible for safety in the workplace. Responsibilities include establishing and enforcing laws governing occupational exposure to toxic chemicals, such as EtO and glutaraldehyde.

Environmental Protection Agency (EPA)—The federal regulatory agency responsible for protecting land, water, and air. Their responsibilities include the regulation of the manufacturing, labeling, and emissions of ethylene oxide (EtO).

Food and Drug Administration (FDA)—The federal regulatory agency responsible for the manufacture and safety of medical devices, food, and drugs. Responsibilities include the regulation of manufacture and classification of medical devices, such as infusion pumps, feeding pumps, and implantable devices.

Centers for Disease Control (CDC)—
performs research and makes recommendations regarding infection control issues.

National Institute of Occupational Safety and Health (NIOSH)—
performs research and makes recommendations regarding occupational safety and health issues.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO)—
is a voluntary accreditation organization to which healthcare facilities may choose to belong in order to qualify for financial reimbursement from insurers. The JCAHO standards which affect SPD are infection control, safety, sterilization, quality assurance, and training.

Professional organizations offer recommendations and/or guidelines which impact SPD. They provide enhancement of patient care by elevating the standards of SPD personnel. They include:

- American Society for Healthcare Central Service Personnel
- International Association of Hospital Central Service Personnel
- International Association of Hospital Central Service Material Managers
- Association of Operating Room Nurses
- Association of Practitioners of Infection Control

- Association of the Advancement of Medical Instrumentation

SPD employees are encouraged to join professional organizations and associations to advance their knowledge of field practices. These organizations enhance patient care by elevating the knowledge and skill of SPD personnel.

Communication

Medical supply technicians communicate on a daily basis with individuals from various backgrounds. These include doctors, nurses, hospital personnel, patients, and their families. Good communication ensures that pertinent information is exchanged regarding patient care needs, meeting the user's needs and keeping medical supply technicians up-to-date on current inventory and their specific uses. Communication is essential within the SPD section. Good interpersonal relationships promote a productive work environment.

In face-to-face meetings or phone conversations, technicians must be polite and courteous. A helpful attitude promotes good will and smoother work production.

Gossip, malicious talk, and rumors lead to dissension and dissatisfaction, which can ultimately degrade the quality of service provided.

All tasks should be performed according to established procedures. Taking shortcuts or skipping procedural steps may appear to save time and be more efficient, but the result may be that supplies are not prepared correctly and may not be usable. Not following established procedures may endanger the safety of both patients and staff. The SPD Procedures Manual was developed to document and communicate standard SPD Procedures to all involved.

Terminology

Knowledge of basic medical/surgical terminology is essential for the SPD technician. Many times when items are requested, generic or "slang" terminology is used. SPD technicians must be familiar

with the many different terms used and be willing, when necessary, to ask questions for clarification. In instances where an unfamiliar item is requested, as much information as possible should be obtained. For example, when a catheter is requested, the user may need a cardiac catheter, a Foley catheter, or a urethral catheter. A call received for an airway may indicate a need for an oral airway, nasal trumpet, or an endotracheal tube. Patient care incidents can be avoided if the medical supply technician can comprehend and correctly use medical terminology. Understanding what an item is used for, and why, will also enable the technician to obtain the item quickly and correctly.

The key to understanding medical terminology is in understanding the relationship between root words, prefixes, and suffixes. The root is the base of the word. Think of it as the topic or subject being discussed. Prefixes, at the beginning of a word, and suffixes, added to the end of a word, modify the root.

In this module you have seen a brief overview of SPD, its history, structure, responsibilities, and requirements.

The following questions will help you review and confirm your understanding of what you have learned.

✓ Check What You Know

1. SPD's main purpose or role is _____

   _____.

2. SPD's mission is to ensure controlled aseptic conditions in the processing, storage, and distribution of medical and surgical supplies, while

   _____.

3. SPD is the area where medical/surgical supplies and equipment are

   _____, _____, _____, and

   _____ for patient use.

4. The three main functional areas of SPD are:

   _____

   _____

   _____

5. As an SPD technician, what is your responsibility for patient confidentiality?

   _____

6. As an SPD technician, what is your responsibility for cost containment?

   _____

7. Describe the meaning of each of the following terms in the SPD environment and identify the direction of flow (clean to dirty or dirty to clean).

   - Work flow
   - People flow
   - Material Flow
   - Air flow

8. List four of the six types of workplace hazards that may be found in SPD and give an example of each.

   _____

_____

_____

_____

9. What is an MSDS? _____

_____

10. Treating all contaminated material as if it were infectious is mandated by

_____.

11. List three regulatory agencies which affect health care facilities.

_____

_____

_____

12. List three Professional organizations that help to build SPD employees' skill and knowledge:

_____

_____

_____

13. What traits or abilities are necessary to function as a successful member of the SPD team?

_____

_____

Terminology

The following terms were used in this module.

antiseptic	opposing sepsis, preventing or arresting the growth of microorganisms
case cart	a mobile unit equipped with supplies and equipment that are specific to a certain surgical procedure
clinical	involving or depending on direct observation of a living patient
cross-contamination	the transmission of microorganisms from one surface to another
distribution	delivering supplies from a central location to the areas where they will be used
exchange cart	a mobile supply container that is stocked with a predefined set of supplies, when some have been used the entire cart is removed for restocking and replaced with another fully stocked one
microorganisms	a living being too small to see with the naked eye
MSDS	Material Safety Data Sheet
non-sterile	not free from living organisms, especially microorganisms

nosocomial	hospital-acquired
par level restocking	re-ordering and replacement of supplies based on a pre-determined requirement list
primary stock	supplies that are kept on hand, at-the-ready, in the SPD area
secondary inventory	medical and surgical supplies in the user areas such as wards, nursing home care units, and ICUs
sterile	free from living organisms, especially microorganisms
Universal Precaution/Standards	The practice of Universal Precaution/Standards Precautions is to be followed by all healthcare workers whose functions could bring them into contact with blood, body fluids, or body substances. All of the precautions mandate that all contaminated items are treated as if they are known to be infectious. Precautions also include frequent hand washing and the use of PPE.